

Introduction and History

- The National Library of Medicine™ (NLM™) has been indexing the biomedical literature, since 1879, to help provide health professionals access to information necessary for research, health care, and education.
- Beginning in the 1960s, NLM's computer-based Medical Literature Analysis and Retrieval System (MEDLARS®) has allowed rapid access to a vast store of references to biomedical information.

MEDLINE® is the National Library of Medicine's premier bibliographic database containing citations and author abstracts from approximately 4,800 biomedical journals published in the United States and in other countries.

- MEDLINE currently contains over 13 million references dating back to 1966.
- New material is added Tuesday through Saturday.
- Coverage is worldwide, but most records (88%) are from English-language sources or have English abstracts.
- Approximately 76% of the citations are included with the published abstract.
- The scope of MEDLINE includes such diverse topics as microbiology, delivery of health care, nutrition, pharmacology and environmental health. The categories covered in MEDLINE include everything from anatomy, organisms, diseases, psychiatry, psychology to the physical sciences.

MEDLINE – Basic Bibliographic Citation

One MEDLINE citation represents one journal article and is composed of fields that provide specific information (Title, Author, Language, etc.) about the journal article. The following information is generally provided:

- Title of the journal article
- Names of the Authors
- Abstract published with the article
- Controlled Vocabulary search terms (MeSH headings)
- Journal Source Information
- First Author Affiliation
- Language in which the article was published
- Publication Type (description of the type of article, e.g., Review, Letter, etc.)

A sample MEDLINE citation from PubMed follows.

PubMed MEDLINE citation:

J Child Neurol. 2004 Sep;19(9):687-9.

[Related Articles, Links](#)



Epilepsy surgery for children with tuberous sclerosis complex.

Weiner HL, Ferraris N, LaJoie J, Miles D, Devinsky O.

Division of Pediatric Neurosurgery, Department of Neurosurgery, New York University Medical Center, New York, NY 10016, USA. howard.weiner@med.nyu.edu

Tuberous sclerosis complex is associated with medically refractory seizures and developmental delay in children. These epilepsies are often resistant to antiepileptic drugs, can be quite severe, and usually have a negative impact on the child's neurologic and cognitive development. It is believed that functional outcome is improved if seizures can be controlled at an early age. The surgical treatment of intractable epilepsy in children and adults with tuberous sclerosis complex has gained significant interest in recent years. Previously published studies have shown a potential benefit from resection of single tubers, with most of the results noted in relatively older children. All of these reports support the idea that if a single primary epileptogenic tuber or region can be identified, then a surgical approach is appropriate. However, most children with tuberous sclerosis complex have multiple potentially epileptogenic tubers, rendering localization challenging, and they are therefore rejected as possible surgical candidates. We have used a novel surgical approach using invasive intracranial monitoring, which is typically multistaged and bilateral. This multistage surgical approach has been useful in identifying both primary and secondary epileptogenic zones in patients with tuberous sclerosis complex with multiple tubers. Multiple or bilateral seizure foci are not necessarily a contraindication to surgery in selected patients. Long-term follow-up will determine whether this approach has durable effects. We await better methods for identifying the epileptogenic zone, both noninvasive and invasive.

Publication Types:

- Review
- Review, Tutorial

MeSH Terms:

- Age Factors
- Anticonvulsants/therapeutic use
- Child
- Child, Preschool
- Drug Resistance
- Electric Stimulation Therapy
- Electrodes, Implanted
- Electroencephalography
- Epilepsy/etiology*
- Epilepsy/surgery*
- Humans
- Infant
- Infant, Newborn
- Neurosurgical Procedures/methods*
- Research Support, U.S. Gov't, P.H.S.
- Severity of Illness Index
- Tuberous Sclerosis/complications*

Substances:

- Anticonvulsants

PMID: 15563015 [PubMed - indexed for MEDLINE]

Free MEDLINE Searching

- Introduced on June 26, 1997.
- Available through the NLM Web Site: <http://www.nlm.nih.gov>
- From NLM Web site, click **PubMed** on the right.

United States
National Library of Medicine
National Institutes of Health

The World's Largest
Medical Library

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- The Public
- Health Care Professionals
- Researchers
- Librarians
- Publishers

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(12/22/04)

[Study Finds Genetic Link to Lung Cancer](#)
(12/22/04)

[Study Finds No Evidence Death Takes a Holiday](#)

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List of NLM Databases and Resources

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Health and drug information for patients, family and friends
[VISIT SITE](#)
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The National Network of Libraries of Medicine®

Medical libraries through out the United States are joined together in a network. The purpose of the National Network of Libraries of Medicine (NN/LM®) is to provide health science practitioners, investigators, educators, and administrators in the United States with timely, convenient access to biomedical and health care information resources.

- The network is administered by the National Library of Medicine.
- It consists of eight Regional Medical Libraries (major institutions under contract to NLM), more than 140 Resource Libraries (primarily at medical schools), and some 4,700 Primary Access Libraries (primarily at hospitals).
- The Regional Medical Libraries administer and coordinate services in the network's eight geographical regions.



NN/LM Web site: <http://nnlm.gov>

Toll free phone number: 1-800-338-7657

Document Delivery

Loansome Doc® offers full-text document ordering. This feature is part of PubMed and the NLM Gateway.

DOCLINE® is the computerized interlibrary loan system that is the foundation for Loansome Doc.



More information on Loansome Doc and DOCLINE may be found on factsheets found at the NLM Web site:

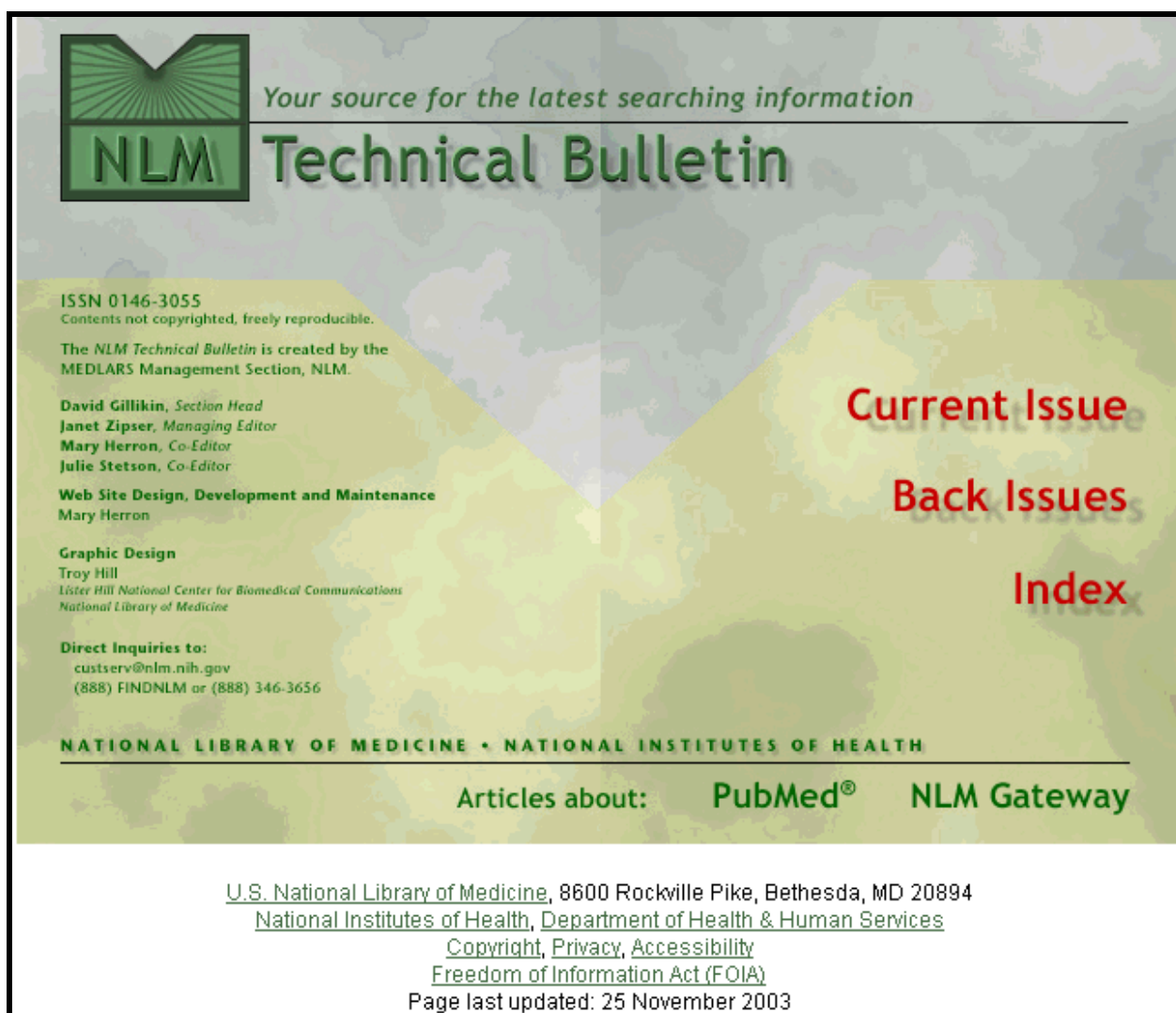
Loansome Doc – http://www.nlm.nih.gov/pubs/factsheets/loansome_doc.html

DOCLINE - <http://www.nlm.nih.gov/pubs/factsheets/docline.html>

NLM Technical Bulletin

- A bi-monthly newsletter published for NLM online searchers.
- The *NLM Technical Bulletin* keeps searchers apprised of:
 - changes and enhancements to NLM retrieval systems
 - changes to MeSH vocabulary
 - tips for searching
- The *Technical Bulletin* is published electronically on the NLM Web site. The URL is:

<http://www.nlm.nih.gov/pubs/techbull/tb.html>

The image shows the cover of the NLM Technical Bulletin. It features a green and yellow color scheme with a stylized 'M' logo containing the letters 'NLM'. The title 'NLM Technical Bulletin' is prominently displayed in green. Below the title, there is a list of staff members including David Gillikin, Janet Zipser, Mary Herron, and Julie Stetson. The cover also includes the ISSN 0146-3055, a statement about copyright, and contact information for direct inquiries. On the right side, there are links for 'Current Issue', 'Back Issues', and 'Index'. At the bottom, it mentions 'Articles about: PubMed® NLM Gateway' and provides the address of the U.S. National Library of Medicine. The page is dated as 'Page last updated: 25 November 2003'.

NLM Your source for the latest searching information

Technical Bulletin

ISSN 0146-3055
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Current Issue
Back Issues
Index

NATIONAL LIBRARY OF MEDICINE • NATIONAL INSTITUTES OF HEALTH

Articles about: **PubMed®** **NLM Gateway**

U.S. National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894
National Institutes of Health, Department of Health & Human Services
Copyright, Privacy, Accessibility
Freedom of Information Act (FOIA)
Page last updated: 25 November 2003

Consumer Information

- On October 22, 1998 NLM launched a consumer health home page called **MEDLINEplus®**
- Designed to direct consumers to resources containing information that will assist in researching their health questions.
- The pages are designed for education use only and are not intended to replace advice from a health professional.
- These pages provide a carefully selected list of resources, not a comprehensive catalog.

Click on the **MEDLINEplus** image on the right-hand side of the NLM home page:



The screenshot shows the MEDLINEplus Health Information website. At the top, there is a purple header with the MEDLINEplus logo and the text "A service of the U.S. NATIONAL LIBRARY OF MEDICINE and the NATIONAL INSTITUTES OF HEALTH". Below the header is a search bar and navigation links: "About | Site Map | FAQs | Contact Us" and a button labeled "español".

The main content area is divided into several sections:

- Health Topics:** Start here with over 600 topics on conditions, diseases and wellness.
- Drug Information:** About your prescription and over-the-counter medicines.
- Medical Encyclopedia:** Includes pictures and diagrams.
- Dictionary:** Spellings and definitions of medical words.
- News:** Health News from the past 30 days.
- Directories:** Find doctors, dentists and hospitals.
- Other Resources:** Local libraries, health organizations, international sites and more.

Other sections include:

- Current Health News:** Links to articles such as "Vaccination Rates Still Vary by Race/Ethnicity", "Sleep on It Is Good Advice to Improve Memory", and "Antibiotic-resistant Infections on the Rise".
- Featured Site:** Announcing a new service: Receive news headlines via email! Sign up now!
- In the Spotlight:** October is Breast Cancer Awareness Month. Learn more: Links to "Breast Cancer Health Topic Page", "Interactive Health Tutorial on Breast Cancer", and "Latest News on Breast Cancer".
- Interactive Tutorials:** Over 165 slideshows with sound and pictures.
- ClinicalTrials.gov:** Studies for new drugs and treatments.
- NIH SeniorHealth:** Health information for older adults.

At the bottom right, there are links for "What's new on MEDLINEplus?", "Sign up now!", "Add MEDLINEplus to your site", and "Take a tour of the site".

NLM Customer Service

Contact NLM if you need assistance or have questions about NLM's products or services.

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custserv@nlm.nih.gov

Toll-Free Phone


1-888-FINDNLM (1-888-346-3656)

On the NLM home page, **Contact NLM** on black bar:



Contact NLM | Site Map | FAQs

You will be taken to this screen:

| | |
|---|--|
| <h3>Contact the National Library of Medicine</h3> <p>Printer-friendly Version</p> <p><i>We can help you find health information resources. We cannot respond to questions about individual medical cases or offer medical advice, because we are not physicians, nurses, or pharmacists.</i></p> <ul style="list-style-type: none"> Contact us with questions Got a Question? Ask Cosmo <div style="text-align: center;">  <p>Ask Cosmo about NLM. 24 hours a day, 7 days a week</p> </div> <ul style="list-style-type: none"> NLM Customer Service Policy <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Have you checked these sources?</p> </div> <ul style="list-style-type: none"> Frequently Asked Questions (FAQs) Someone may have already asked your question NLM Fact Sheets Information about NLM's programs, products and services NLM Technical Bulletin Newsletter for online searchers NLM Publications Catalog Publications produced by the Library | <div style="background-color: #0070C0; color: white; padding: 5px;">Phone Numbers</div> <p>(888) FIND-NLM</p> <p>(888) 346-3656</p> <p>(301) 594-5983 (local and international calls)</p> <p>(301) 402-1384 (FAX)</p> <p>(301) 496-2809 (ILL FAX)</p> <p>Search for a Staff Member</p> <div style="background-color: #0070C0; color: white; padding: 5px;">Web Address</div> <p>www.nlm.nih.gov</p> <div style="background-color: #0070C0; color: white; padding: 5px;">Mailing Address</div> <p>Reference and Customer Services National Library of Medicine 8600 Rockville Pike Bethesda, MD 20894</p> |
|---|--|

Subscribe to NLM-Announces Mailing List

This mailing list will alert you when new information has been added to the NLM Web site.
For example:

- When articles have been added to the *NLM Technical Bulletin* Web site
- When the training manuals have been revised
- Other important NLM announcements and events

Go to <http://list.nih.gov/cgi-bin/wa?SUBED1.nlm-announces&A=1> or

Click on **About the National Library of Medicine** from the NLM home page.

Click on **News and Events**.

Scroll down to **New on this Site**. Click on **Subscribe to the NLM-Announces mailing list**.

Click on **NLM-Announces**.

Click on **Join or leave the list (or change settings)**.

NLM-ANNOUNCES

Join, Leave , or Change Options

This screen allows you to join or leave the NLM-ANNOUNCES list. To confirm your identity and prevent third parties from subscribing you to the list against your will, an e-mail message with a confirmation code will be sent to the address you specify in the form. Simply wait for this message to arrive, then follow the instructions to confirm the operation.

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Subscription type: ☒ Regular ☐ [MODIGEST]

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information.*

*Click **Join
the list**
button.*

Medical Subject Headings (MeSH® Vocabulary)

What is MeSH?

- Acronym for **Medical Subject Headings**
- Used for indexing journal articles for MEDLINE and also used for cataloging books and audiovisuals
- Used by searchers
- Revised annually
- Gives uniformity and consistency to the indexing of the biomedical literature and is a distinctive feature of MEDLINE.
- Similar to key words on other systems
- Arranged in a hierarchical manner called the MeSH Tree Structure

MeSH Vocabulary includes four types of terms:

- Headings
- Subheadings
- Supplementary Concept Records
- Publication Types

MeSH headings represent concepts found in the biomedical literature.

Examples of MeSH Headings:

- | | | |
|---------------|-----------------------------|--------------------|
| • Body Weight | • Dental Cavity Preparation | • RadioactiveWaste |
| • Kidney | • Self Medication | • Brain Edema |

MeSH Tree Structure

- MeSH vocabulary is organized by 15 main branches:
 - A. Anatomy
 - B. Organisms
 - C. Diseases
 - D. Chemical and Drugs
 - E. Analytical, Diagnostic and Therapeutic Techniques and Equipment
 - F. Psychiatry and Psychology
 - G. Biological Sciences
 - H. Physical Sciences
 - I. Anthropology, Education, Sociology and Social Phenomena
 - J. Technology and Food and Beverages
 - K. Humanities
 - L. Information Science
 - M. Persons
 - N. Health Care
 - Z. Geographic Locations
- Each Descriptor has a tree number that positions the term in the hierarchy.

Eye [A01.456.505.420]
 Eyebrows [A01.456.505.420.338]
 Eyelids [A01.456.505.420.504]
 Eyelashes [A01.456.505.420.504.421]

- Some terms have multiple tree numbers because they appear in more than one place in the hierarchy.
- By having narrower terms indented under broader terms, a search of a broad term can automatically include the narrower terms. This is known as an EXPLODE.

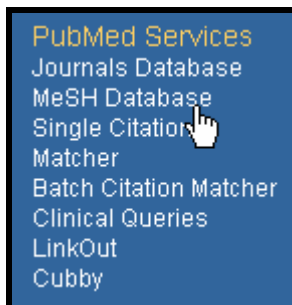
MeSH

MeSH is an Entrez database provided to assist PubMed users locate appropriate terms for MEDLINE searches. This database provides information about MeSH terms including:

- Definitions
- Synonyms for the concept
- Related terms
- The position of the term in the MeSH hierarchy.

We can use the MeSH database to look at the type of information associated with each MeSH term:

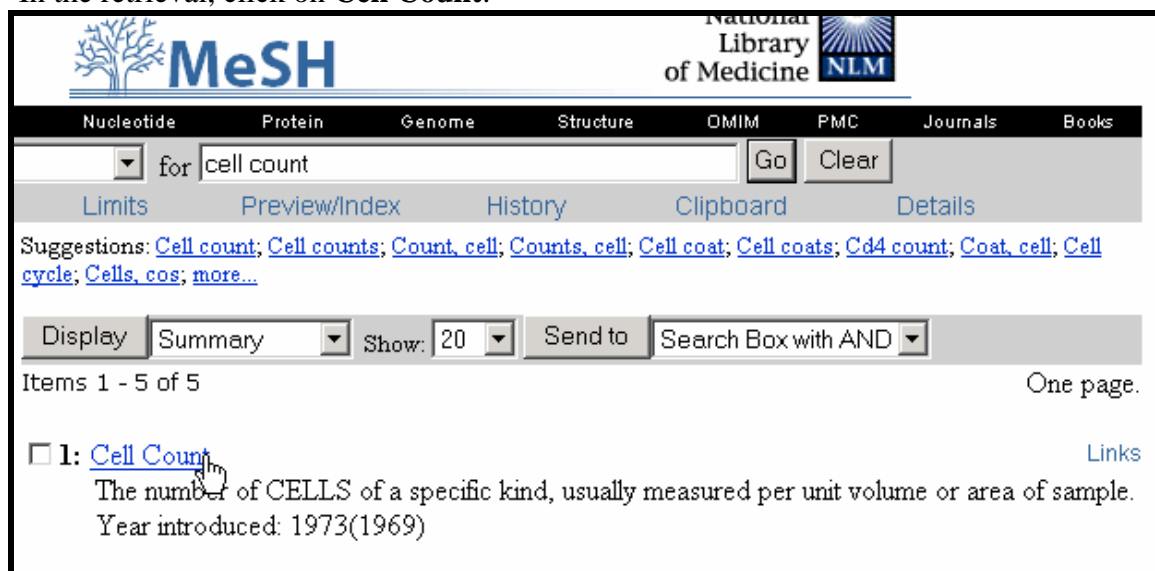
Click on **MeSH Database** on the sidebar:



Enter **cell count** and click on **Go**:



In the retrieval, click on **Cell Count**:



This displays the full record for **Cell Count**:

MeSH term,
definition, and
year

Cell Count [Links](#)

The number of CELLS of a specific kind, usually measured per unit volume or area of sample.
Year introduced: 1973(1969)

Subheadings:

☐ classification ☐ drug effects ☐ economics ☐ history ☐ instrumentation ☐ methods ☐ radiation effects ☐ standards ☐ statistics and numerical data ☐ trends ☐ veterinary

☐ Restrict Search to Major Topic headings only

☐ Do Not Explode this term (i.e., do not include MeSH terms found below this term in the MeSH tree).

Entry Terms:

- Cell Counts
- Count, Cell
- Counts, Cell
- Cell Number
- Cell Numbers
- Number, Cell
- Numbers, Cell
- Cell Density
- Cell Densities
- Densities, Cell
- Density, Cell

Previous Indexing:

- [Cytology \(1966-1968\)](#)

See Also:

- [Blood Cell Count](#)
- [Sperm Count](#)

[All MeSH Categories](#)

[Analytical, Diagnostic and Therapeutic Techniques and Equipment Category](#)
[Investigative Techniques](#)
[Clinical Laboratory Techniques](#)
[Cytological Techniques](#)
Cell Count
[Blood Cell Count](#)
[Erythrocyte Count](#) +
[Leukocyte Count](#) +
[Platelet Count](#)
[Sperm Count](#)

[All MeSH Categories](#)

[Biological Sciences Category](#)
[Biological Phenomena, Cell Phenomena, and Immunity](#)
[Cell Physiology](#)
Cell Count
[Blood Cell Count](#)
[Erythrocyte Count](#) +
[Leukocyte Count](#) +
[Platelet Count](#)
[Sperm Count](#)

Select
Subheadings

Major topic &
Do Not Explode

“Synonyms” for this
term.

Before 1969...

Related terms of
possible interest

Position of this term
in the MeSH
hierarchy.

←

This term has been
placed in 2
branches.

←

Use the Links menu to go to the NLM MeSH Browser for complete information:

Cell Count
The number of CELLS of a specific kind, usually measured per unit volume or area of
Year introduced: 1973(1969)

Subheadings:
☐ classification ☐ drug effects ☐ economics ☐ history ☐ instrumentation ☐ methods ☐ radiation
effects ☐ standards ☐ statistics and numerical data ☐ trends ☐ veterinary

Links
▶ PubMed
▶ Clinical Queries
▶ NLM MeSH Browser

The NLM MeSH Browser is the tool used by MEDLINE indexers and catalogers.

| National Library of Medicine - Medical Subject Headings | |
|---|--|
| 2005 MeSH | |
| MeSH Descriptor Data | |
| Return to Entry Page | |
| MeSH Heading | Cell Count |
| Tree Number | E05.200.500.195 |
| Tree Number | G04.335.130 |
| Annotation | usually NIM; not for micro-organisms |
| Scope Note | The number of CELLS of a specific kind, usually measured per unit volume or area of sample. |
| Entry Term | Cell Density |
| Entry Term | Cell Number |
| See Also | Blood Cell Count |
| See Also | Sperm Count |
| Allowable Qualifiers | CL EC ES HI IS MT SN ST TD UT VE |
| Previous Indexing | Cytology (1966-1968) |
| Online Note | use CELL COUNT to search CELL NUMBER 1978-79 |
| History Note | 73(69); CELL NUMBER was heading 1978-79 |
| Unique ID | D002452 |

Indexing with MeSH Headings

- NLM's MEDLINE indexers examine articles and assign the most specific MeSH heading(s) appropriate to describe the main concepts discussed.
- When there is no single specific MeSH heading for a concept, the indexer will use the closest, more general MeSH heading available.
- The indexer will assign as many MeSH headings as appropriate to cover the topics of the article (generally 5 to 15).
- The MeSH terms that reflect the major points of the article are marked with an asterisk (*) by indexers.
- Information the indexer provides includes:
 - topic of article
 - age group of population studied
 - human vs. animal studies
 - male vs. female studies
 - type of article (e.g., review article)

Article Title:

American College of Preventive Medicine Practice Policy
Statement. Screening for elevated blood lead levels in children.

Abstract:

Based on a review of the current literature and recommendations, the American College of Preventive Medicine presents a practice policy statement on screening for elevated blood lead levels in children.

Publication Types:

Guideline
Practice Guideline
Review
Review, Tutorial

MeSH Terms:

Child
Child, Preschool
Female
Guidelines*
Humans
Lead/blood
Lead Poisoning/prevention & control*
Male
Mass Screening/standards*
Physician's Practice Patterns
Policy Making
Preventive Medicine/standards*
Societies, Medical
United States

Substances:

Lead

Subheadings

- Subheadings further describe a particular aspect of a MeSH heading.
- Examples: diagnosis, metabolism, adverse effects. The entire list of subheadings follows:

| | | | |
|--------------------------|----|-------------------------------|----|
| Abnormalities | AB | Isolation & Purification | IP |
| Administration & Dosage | AD | Legislation & Jurisprudence | LJ |
| Adverse Effects | AE | Manpower | MA |
| Agonists | AG | Metabolism | ME |
| Analogues & Derivatives | AA | Methods | MY |
| Analysis | AN | Microbiology | MI |
| Anatomy & Histology | AH | Mortality | MO |
| Antagonists & Inhibitors | AI | Nursing | NU |
| Biosynthesis | BI | Organization & Administration | OG |
| Blood | BL | Parasitology | PS |
| Blood Supply | BS | Pathogenicity | PY |
| Cerebrospinal Fluid | CF | Pathology | PA |
| Chemical Synthesis | CS | Pharmacokinetics | PK |
| Chemically Induced | CI | Pharmacology | PD |
| Chemistry | CH | Physiology | PH |
| Classification | CL | Physiopathology | PP |
| Complications | CO | Poisoning | PO |
| Congenital | CN | Prevention & Control | PC |
| Contraindications | CT | Psychology | PX |
| Cytology | CY | Radiation Effects | RE |
| Deficiency | DF | Radiography | RA |
| Diagnosis | DI | Radionuclide Imaging | RI |
| Diagnostic Use | DU | Radiotherapy | RT |
| Diet Therapy | DH | Rehabilitation | RH |
| Drug Effects | DE | Secondary | SC |
| Drug Therapy | DT | Secretion | SE |
| Economics | EC | Standards | ST |
| Education | ED | Statistics & Numerical Data | SN |
| Embryology | EM | Supply & Distribution | SD |
| Enzymology | EN | Surgery | SU |
| Epidemiology | EP | Therapeutic Use | TU |
| Ethics | ES | Therapy | TH |
| Ethnology | EH | Toxicity | TO |
| Etiology | ET | Transmission | TM |
| Genetics | GE | Transplantation | TR |
| Growth & Development | GD | Trends | TD |
| History | HI | Ultrasonography | US |
| Immunology | IM | Ultrastructure | UL |
| Injuries | IN | Urine | UR |
| Innervation | IR | Utilization | UT |
| Instrumentation | IS | Veterinary | VE |
| | | Virology | VI |

Subheading Groupings

- Related subheadings have been grouped.
- Not all subheadings have been placed in these groupings – some do not logically fit.

Families of Subheading Explosions

| | | |
|--------------------------------|---------------------------------|------------------------------------|
| adverse effects | etiology | physiology |
| poisoning | chemically induced | genetics |
| toxicity | complications | growth & development |
| | secondary | immunology |
| analysis | congenital | metabolism |
| blood | embryology | biosynthesis |
| cerebrospinal fluid | genetics | blood |
| isolation & purification | immunology | cerebrospinal fluid |
| urine | microbiology | deficiency |
| | virology | enzymology |
| anatomy & histology | parasitology | pharmacokinetics |
| blood supply | transmission | urine |
| cytology | | physiopathology |
| pathology | metabolism | secretion |
| ultrastructure | biosynthesis | |
| embryology | blood | statistics & numer data |
| abnormalities | cerebrospinal fluid | epidemiology |
| innervation | deficiency | ethnology |
| | enzymology | mortality |
| chemistry | pharmacokinetics | supply & distribution |
| agonists | urine | utilization |
| analogs & derivatives | | |
| antagonists & inhibitors | microbiology | surgery |
| chemical synthesis | virology | transplantation |
| | | |
| complications | organization & admin | therapeutic use |
| secondary | economics | administration & dosage |
| | legislation & jurisprudence | adverse effects |
| cytology | manpower | contraindications |
| pathology | standards | poisoning |
| ultrastructure | supply & distribution | |
| | trends | therapy |
| diagnosis | utilization | diet therapy |
| pathology | | drug therapy |
| radiography | pharmacology | nursing |
| radionuclide imaging | administration & dosage | prevention & control |
| ultrasonography | adverse effects | radiotherapy |
| | poisoning | rehabilitation |
| embryology | toxicity | surgery |
| abnormalities | agonists | transplantation |
| | antagonists & inhibitors | |
| epidemiology | contraindications | |
| ethnology | diagnostic use | |
| mortality | pharmacokinetics | |

Pharmacologic Action Terms

Every drug and chemical MeSH heading has been assigned one or more headings that describe its pharmacological action (PA).

- Beginning in 1996, indexers add the appropriate pharmacological action MeSH heading as well as the specific chemical MeSH heading to a citation when the action of the chemical is being discussed in the article.

Example:

Here are the pharmacological actions established for the MeSH Heading, Aspirin:

| | |
|------------------------|---|
| MeSH Heading | Aspirin |
| Pharmacological Action | Anti-Inflammatory Agents, Non-Steroidal |
| Pharmacological Action | Cyclooxygenase Inhibitors |
| Pharmacological Action | Fibrinolytic Agents |
| Pharmacological Action | Platelet Aggregation Inhibitors |

- A citation to an article that discusses **aspirin used as an anti-inflammatory agent** will be assigned:

Aspirin
Anti-Inflammatory Agents, Non-Steroidal

- A citation to an article that discusses **aspirin used to inhibit blood clotting** will be assigned:

Aspirin
Platelet Aggregation Inhibitors

Pharmacological Action Term List for **Caustics**:

Caustics [Pharmacological Action]

- Lye (*MeSH Term*)
- Podophyllin (*MeSH Term*)
- Potassium Dichromate (*MeSH Term*)
- Sodium Hydroxide (*MeSH Term*)
- Trichloroacetic Acid (*MeSH Term*)

[All MeSH Categories](#)

[Pharmacological Actions Category](#)

Caustics

Other Types of MeSH Vocabulary

Supplementary Concepts

- Over 100,000 terms in a separate chemical thesaurus.
- Display in RN field on MEDLINE record.

CAS Registry Number/EC Number

- Unique 5- to 9-digit number in hyphenated format representing either the Chemical Abstracts number or the E.C. number from the Enzyme Nomenclature.
- Displays in RN Field on MEDLINE record with Supplementary Concept term.
- May display as zero (0), generally for terms for a group or class of compounds.

Examples (as seen in MEDLINE):

RN – 68373-14-8 (Sulbactam)

RN – 69-53-4 (Ampicillin)

Age Group MeSH Headings

These are MeSH headings which indicate the age of human subjects discussed in the article:

| | |
|------------------|------------------|
| Infant, Newborn | Birth to 1 month |
| Infant | 1 to 23 months |
| Child, Preschool | 2 to 5 years |
| Child | 6 to 12 years |
| Adolescent | 13 to 18 years |
| Adult | 19 to 44 years |
| Middle aged | 45 to 64 years |
| Aged | 65+ |

Publication Types

- Publication Types describe the type of material being indexed.
- The most common type is Journal Article. Other Publication Types include:

| | |
|-----------------------|---------------------------|
| Clinical Trial | Retraction of Publication |
| Comment | Review |
| Practice Guideline | Twin Study |
| Retracted Publication | |

- Publication Types may be searched in the MeSH Database. Definitions are provided.

NLM MeSH Browser

- Allows you to look through the MeSH vocabulary to see if there is a MeSH term for a particular concept.

Where is it?

- The MeSH browser is introduced on this page of NLM's site:

<http://www.nlm.nih.gov/mesh/>

- The link to the current MeSH browser (**<http://www.nlm.nih.gov/mesh/Mbrowser.html>**) is provided.
- A fuller description of this tool may be found at:

<http://www.nlm.nih.gov/mesh/mbinfo.html>

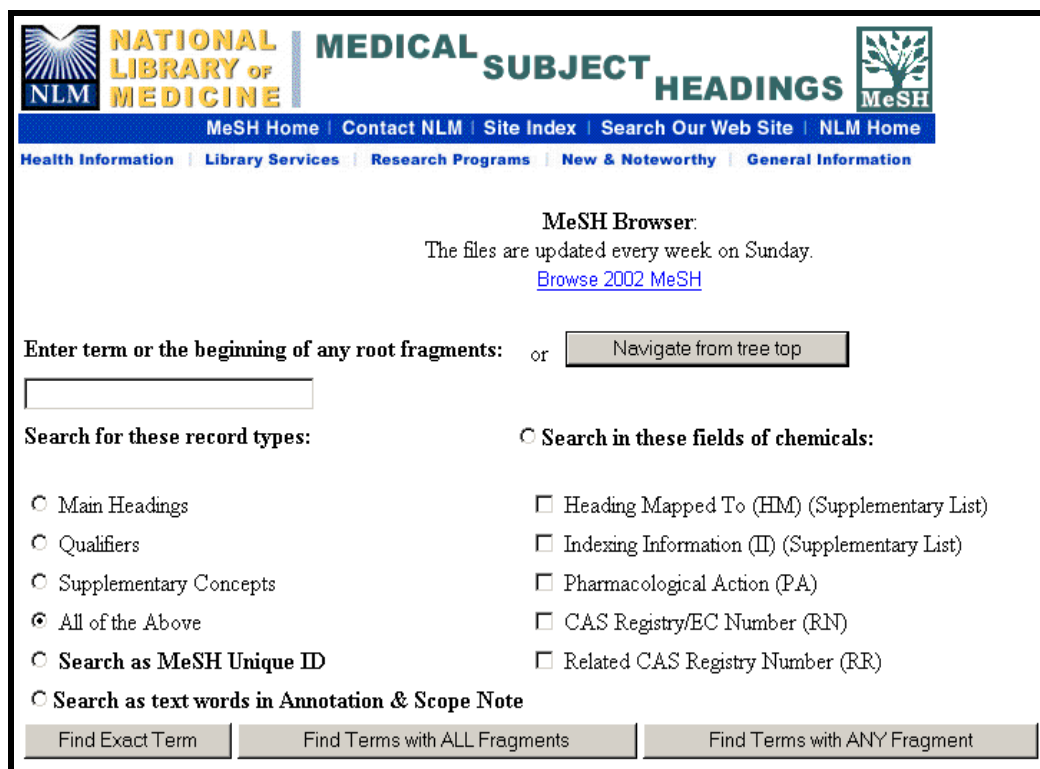
What can I search?

- The Browser allows you to search the 4 types of MeSH records:
 1. MeSH Headings (Descriptors)
 2. Supplementary Concept Records (formerly known as Supplementary Chemical Records)
 3. Qualifiers (subheadings) terms
 4. Publication Types

How do I browse?

- The initial MeSH Browser screen, shown on the next page, provides two ways of finding the MeSH term for a concept.
 1. You can work down (navigate) from the top of the tree.
 2. Enter a term or root to be searched.

Navigate from the top of the tree



The screenshot shows the MeSH Browser interface. At the top, there are logos for the National Library of Medicine (NLM) and Medical Subject Headings (MeSH). Below the logos is a navigation bar with links: MeSH Home, Contact NLM, Site Index, Search Our Web Site, and NLM Home. Underneath this bar are more links: Health Information, Library Services, Research Programs, New & Noteworthy, and General Information.

The main heading is "MeSH Browser:". Below it, a message states "The files are updated every week on Sunday." and a link "Browse 2002 MeSH".

There is a search input field with the placeholder text "Enter term or the beginning of any root fragments:". To the right of this field is a button labeled "Navigate from tree top".

Below the search field, there are two sections of radio buttons:

- Search for these record types:**
 - ☐ Main Headings
 - ☐ Qualifiers
 - ☐ Supplementary Concepts
 - ☒ All of the Above
 - ☐ Search as MeSH Unique ID
 - ☐ Search as text words in Annotation & Scope Note
- Search in these fields of chemicals:**
 - ☐ Heading Mapped To (HM) (Supplementary List)
 - ☐ Indexing Information (II) (Supplementary List)
 - ☐ Pharmacological Action (PA)
 - ☐ CAS Registry/EC Number (RN)
 - ☐ Related CAS Registry Number (RR)

At the bottom, there are three buttons: "Find Exact Term", "Find Terms with ALL Fragments", and "Find Terms with ANY Fragment".

*Let's start by
using the
Navigate button.*

The first level shows the fifteen broad categories in MeSH.

When you click on the plus sign to the left of a term, you will open that category and see the concepts grouped here (see below).

MeSH Tree Structures - 2005

[Return to Entry Page](#)

1. ☒ **Anatomy [A]**
2. ☒ **Organisms [B]**
3. ☒ **Diseases [C]**
4. ☒ **Chemicals and Drugs [D]**
5. ☒ **Analytical, Diagnostic and Therapeutic Techniques and Equipment [E]**
6. ☒ **Psychiatry and Psychology [F]**
7. ☒ **Biological Sciences [G]**
8. ☒ **Physical Sciences [H]**
9. ☒ **Anthropology, Education, Sociology and Social Phenomena [I]**
10. ☒ **Technology and Food and Beverages [J]**
11. ☒ **Humanities [K]**
12. ☒ **Information Science [L]**
13. ☒ **Persons [M]**
14. ☒ **Health Care [N]**
15. ☒ **Geographic Locations [Z]**

Beginning at this level you can select a term and see detailed information about that concept, or continue down, or branch out.

1. ☒ **Anatomy [A]**
2. ☒ **Organisms [B]**
 - o [Animals \[B01\] +](#)
 - o [Algae \[B02\] +](#)
 - o [Bacteria \[B03\] +](#)
 - o [Viruses \[B04\] +](#)
 - o [Fungi \[B05\] +](#)
 - o [Plants \[B06\] +](#)
 - o [Archaea \[B07\] +](#)
3. ☒ **Diseases [C]**
4. ☒ **Chemicals and Drugs [D]**

If you click on a term you will go to a page that shows the position(s) of the hierarchy in which the term is placed.

At the top of this screen you can find information about the term.

| | |
|-----------------------------|---|
| MeSH Heading | Helicobacter pylori |
| Tree Number | B03.440.500.550 |
| Tree Number | B03.660.150.280.550 |
| Annotation | infection: coord IM with HELICOBACTER INFECTIONS (IM) |
| Scope Note | A spiral bacterium active as a human gastric pathogen. It is a gram-negative, urease-positive, curved or slightly spiral organism initially isolated in 1982 from patients with lesions of gastritis or peptic ulcers in Western Australia. Helicobacter pylori was originally classified in the genus CAMPYLOBACTER , but RNA sequencing, cellular fatty acid profiles, growth patterns, and other taxonomic characteristics indicate that the micro-organism should be included in the genus HELICOBACTER . It has been officially transferred to Helicobacter gen. nov. (see Int J Syst Bacteriol 1989 Oct;39(4):297-405). |
| Entry Term | Campylobacter pylori |
| Allowable Qualifiers | CH CL CY DE EN GD GE IM IP ME PH PY RE UL VI |
| Previous Indexing | Campylobacter (1984-1990) |
| History Note | 91 |
| Unique ID | D016480 |

MeSH Tree Structures

[Bacteria \[B03\]](#)

[Gram-Negative Bacteria \[B03.440\]](#)

[Helicobacter \[B03.440.500\]](#)

[Helicobacter felis \[B03.440.500.250\]](#)

[Helicobacter heilmannii \[B03.440.500.350\]](#)

[Helicobacter hepaticus \[B03.440.500.362\]](#)

[Helicobacter mustelae \[B03.440.500.450\]](#)

► [Helicobacter pylori \[B03.440.500.550\]](#)

[Bacteria \[B03\]](#)

[Proteobacteria \[B03.660\]](#)

[Epsilonproteobacteria \[B03.660.150\]](#)

[Helicobacter \[B03.660.150.280\]](#)

[Helicobacter felis \[B03.660.150.280.350\]](#)

[Helicobacter heilmannii \[B03.660.150.280.400\]](#)

[Helicobacter hepaticus \[B03.660.150.280.410\]](#)

[Helicobacter mustelae \[B03.660.150.280.480\]](#)

► [Helicobacter pylori \[B03.660.150.280.550\]](#)

The data in a **MeSH Descriptor Record** may include:

- The MeSH Heading used for the concept.
- The Record Type: D for Main (MeSH) Headings.
- Tree Number: The place holder(s) in the numbered hierarchy.
- Annotation: guidelines for indexers and searchers.
- Scope Note: An explanation or definition of this concept to help in understanding its usage as an index term.
- Entry term: synonyms or concepts included by this term.
- See Also: related terms that may be of interest.
- Allowable Qualifiers: Subheadings that may be used in combination with this term. Links to subheading record for more information.
- Entry combination: conversion rules for Descriptors and Qualifiers.
- Previous Indexing: Terms that may have been used to index this concept in the years prior to the year that this term was introduced.
- History Note: The year this concept was introduced into MeSH. Includes historical changes over time.
- Unique ID: A unique number assigned for internal use. MeSH Heading UIs start with the letter D (for Descriptor), e.g., D001419.

Supplemental Concept Record

| | |
|--------------------------|---|
| Name of Substance | cordycepin |
| Record Type | C |
| Registry Number | 73-03-0 |
| Entry Term | 3'-deoxyadenosine |
| Heading Mapped to | *Deoxyadenosines |
| Previous Indexing | *DEOXYADENOSINE (75-89) |
| Source | J Biol Chem 1988;263(33):17590 |
| Thesaurus ID | Merck, 9th ed #2502 |
| Pharm. Action | Antifungal Agents |
| Pharm. Action | Antineoplastic Agents |
| Pharm. Action | Mutagens |
| Frequency | 97 |
| Date of Entry | 19890801 |
| Revision Date | 20001213 |
| Unique ID | C058120 |

See next page for details.

The data in a **Supplemental Concept record** may include:

- Name of substance: For example: quindoxin.
- Record Type: C for Supplemental Concepts.
- Registry Number: For example: 2423-66-7.
- CAS Type 1 Name: The systematic name of a chemical which defines its structure, e.g., quinoxaline, 1,4-dioxide.
- Related Number: A unique number assigned to chemicals by the Chemical Abstract Service, or a code for enzymes assigned by the Commission on Biological Nomenclature. Related number: registry Numbers for salts and/or stereoisomers as well as it's relation to the "parent" chemical.
- Entry Term: Synonyms that can be used for searching this concept.
- Heading Mapped to: The Descriptor used for indexing this chemical in MEDLINE.
- Pharm. Action: An action of a drug or chemical as reported in the literature, e.g., MUTAGENS; ANTIBIOTICS.
- Indexing Information: Other MeSH terms that an indexer should consider using.
- Previous Indexing: MeSH terms used before the current descriptor became available, and also terms removed from the HM field over time.
- Source: Citations to articles in which the chemical has been identified, e.g., Contact Dermatitis 194):256;1975.
- Thesaurus ID: An authoritative reference where the chemical is listed, e.g., USAN 1980, p.276.
- Frequency: The number of times the chemical has been identified in MEDLINE journals.
- Note: Additional information.
- Date of Entry: The date (YYMMDD) the record was added to the system.
- Revision Date: The date (YYMMDD) of the last major revision to this record.
- Unique ID, beginning with "C" for Supplementary Chemical Concept, e.g., C003282.

Back in Entrez's MeSH Database:

- Enter term in the query box and click the Go button.
- If you misspell a term, the MeSH database will suggest terms for you:

The screenshot shows the MeSH database search interface. At the top, there is a navigation bar with links to Nucleotide, Protein, Genome, Structure, OMIM, PMC, Journals, and Books. The search bar contains the text 'ergomity' and a dropdown menu. To the right of the search bar are buttons for 'Go', 'Clear', and 'Save Search'. Below the search bar, there are tabs for 'Limits', 'Preview/Index', 'History', 'Clipboard', and 'Details'. A message box states: 'One of your terms is not found in the database. See [Details](#). No items found.' Below this, a list of suggestions is provided: [Ergometry](#); [Ergomimet](#); [Ergometrin](#); [Ergoline](#); [Ergometrine](#); [Ergosine](#); [Ergostine](#); [Ergolines](#); [Ergonom](#); [Ergotrate](#); [more...](#). A mouse cursor is pointing at the 'Ergonom' suggestion.

- Click on the correct term to go to that record.

The screenshot shows the MeSH database record for 'Ergometry'. The record is titled '1: [Ergometry](#)' with a 'Links' button to the right. The description reads: 'Any method of measuring the amount of work done by an organism, usually during EXERTION. Ergometry also includes measures of power. Some instruments used in these determinations include the hand crank and the bicycle ergometer. Year introduced: 1992'.

N O T E S

Practice Exercises

Use the **MeSH Database** to find the answers to these questions:

1. What terms are indented under Fever?
2. How far back can you search with the MeSH term, “Recombinant DNA?”
3. What ages are included by the term, “Child, Preschool?”
4. What is the preferred MeSH term for “drooling?”
5. What disease is associated with a deficiency of factor VIII?

Suggested Answers:

Use the **MeSH Database** to find the answers to these questions:

1. What terms are indented under Fever?

Fever of Unknown Origin
Sweating Sickness

2. How far back can you search with the MeSH term, “Recombinant DNA?”

1977

3. What ages are included by the term, “Child, Preschool?”

A child between the ages of 2 and 5.

4. What is the preferred MeSH term for “drooling?”

Sialorrhea

5. What disease is associated with a deficiency of factor VIII?

Hemophilia A